

CLAIMS

What is claimed is:

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1. A wireless communications system comprising:
 - a transmitter circuit for transmitting information and generating a random identifier code having randomness that is derived from tolerances associated with components included in the transmitter circuit, wherein the random identifier code is included in the transmitted information.
2. The system of claim 1 wherein the transmitter circuit includes a microcontroller unit having a first I/O port, wherein in response to a code generating event being detected at the first I/O port, a process running in the microcontroller unit generates the random identifier code.
3. The system of claim 2 wherein the microcontroller unit includes a ROM for storing a set of instructions for carrying out the process.
4. The system of claim 2 wherein the microcontroller unit includes a RAM for storing the random identifier code generated by the process.
5. The system of claim 2 wherein the microcontroller unit includes an N-bit timer having an output value that is read in response to the code generating event being detected at the first I/O port.
6. The system of claim 5 wherein the output value of the N-bit timer is the random identifier code.
7. The system of claim 5 wherein the output value of the N-bit timer is applied to a random code generator algorithm stored in a ROM of the microcontroller unit, the random code generator algorithm for generating the random identifier code.
8. The system of claim 1 wherein the transmitter circuit further includes a storage area for storing the random identifier code.

1 9. The system of claim 1 wherein the transmitter circuit is included in one of
2 a wireless mouse, a wireless keyboard, a wireless joystick, a wireless trackball, a wireless
3 video camera and a receiver unit for receiving communications of a wireless device.

1 10. A wireless communications system comprising:

2 a transceiver circuit for transmitting and receiving information, and for
3 generating a random identifier code having randomness that is derived
4 from tolerances associated with components included in the
5 transceiver circuit, wherein the random identifier code is included in
6 the transmitted information.

1 11. The system of claim 10 wherein the transceiver circuit includes a
2 microcontroller unit having a first I/O port, wherein in response to a code generating
3 event being detected at the first I/O port, a process running in the microcontroller unit
4 generates the random identifier code.

1 12. The system of claim 11 wherein the microcontroller unit includes a ROM
2 for storing a set of instructions for carrying out the process.

1 13. The system of claim 11 wherein the microcontroller unit includes a RAM
2 for storing the random identifier code generated by the process.

1 14. The system of claim 11 wherein the microcontroller unit includes an N-bit
2 timer having an output value that is read in response to the code generating event being
3 detected at the first I/O port.

1 15. The system of claim 14 wherein the output value of the N-bit timer is the
2 random identifier code.

1 16. The system of claim 14 wherein the output value of the N-bit timer is
2 applied to a random code generator algorithm stored in a ROM of the microcontroller
3 unit, the random code generator algorithm for generating the random identifier code.

1 17. The system of claim 10 wherein the transceiver circuit further includes a
2 storage area for storing the random identifier code.

1 18. The system of claim 10 wherein the transceiver circuit is included in one
2 of a wireless mouse, a wireless keyboard, a wireless joystick, a wireless trackball, a
3 wireless video camera and a receiver unit for receiving communications of a wireless
4 device.

1 19. A method for distinguishing transmissions of a wireless transmitter, the
2 method comprising:

3 generating a random identifier code having randomness that is derived from
4 tolerances associated with components included in the wireless
5 transmitter; and

6 embedding the random identifier code in the transmissions of the wireless
7 transmitter.

1 20. The method of claim 19 further comprising:

2 storing the random identifier code in a storage area in the wireless transmitter.

1 21. The method of claim 19 wherein the wireless transmitter includes a
2 microcontroller unit having an I/O port, and the generating step is responsive to a code
3 generating event being detected at the I/O port.

1 22. The method of claim 21 wherein the microcontroller unit includes a ROM
2 for storing a set of instructions, and the generating step is carried out pursuant to the
3 instructions.

1 23. The method of claim 19 wherein the wireless transmitter is included in one
2 of a wireless mouse, a wireless keyboard, a wireless joystick, a wireless trackball, a
3 wireless video camera and a receiver unit for receiving communications of a wireless
4 device.

1 24. A method for distinguishing transmissions of a transceiver included in a
2 wireless communications system, the method comprising:

3 generating a random identifier code having randomness that is derived from
4 tolerances associated with components included in the transceiver; and
5 embedding the random identifier code in the transmissions of the transceiver.

1 25. The method of claim 24 further comprising:

2 storing the random identifier code in a storage area in the wireless transmitter.

1 26. The method of claim 24 wherein the wireless transmitter includes a
2 microcontroller unit having an I/O port, and the generating step is responsive to a code
3 generating event being detected at the I/O port.

1 27. The method of claim 26 wherein the microcontroller unit includes a ROM
2 for storing a set of instructions, and the generating step is carried out pursuant to the
3 instructions.

1 28. The method of claim 24 wherein the transceiver is included in one of a
2 wireless mouse, a wireless keyboard, a wireless joystick, a wireless trackball, a wireless
3 video camera and a receiver unit for receiving communications of a wireless device.

1 29. A computer-readable medium having instructions stored thereon which,
2 when executed by a processor included in a wireless communications system, cause the
3 processor to perform the steps of:

4 responsive to a code generating event, receiving data produced by the wireless
5 communications system, wherein the received data has randomness
6 that is derived from tolerances associated with components included in
7 the wireless communications system;

8 generating a random identifier code based on the received data; and

9 storing the random identifier code in a storage area included in the wireless
10 communications system.

1 30. The computer-readable medium of claim 29, wherein the steps performed
2 by the processor further comprise:

3 embedding the random identifier code in transmissions of the wireless
4 communications system.

1 31. The computer-readable medium of claim 29 wherein the wireless
2 communications system includes a microcontroller unit having an I/O port, and the code
3 generating event is detected at the I/O port.

1 32. A method for distinguishing transmissions of a wireless communications
2 device, wherein the wireless communications device has a microcontroller unit having an
3 I/O port coupled to an RC circuit having an output voltage that can be monitored by the
4 I/O port, the method comprising:

5 responsive to a triggering event, commanding the I/O port of the
6 microcontroller unit from a high impedance state to a low voltage state
7 thereby discharging the RC circuit;

8 resetting and starting an N-bit timer of the microcontroller unit, the N-bit
9 timer having an output;

10 commanding the I/O port from the low voltage state to the high impedance
11 state thereby charging the RC circuit;

12 monitoring the output voltage of the RC circuit at the I/O port;

13 responsive to the output voltage at the I/O port reaching a threshold voltage,
14 reading the output of the N-bit timer;

15 generating from the read output of the N-bit timer a random identifier code;
16 and

17 embedding the random identifier code in transmissions of the wireless
18 communications device.

1 33. A wireless communications system comprising:

2 a transmitter circuit for transmitting information and generating a random
3 identifier code having randomness that is derived from tolerances

4 associated with components included in the transmitter circuit,
5 wherein the random identifier code is included in the transmitted
6 information; and

7 a receiver circuit for, responsive to received information having the random
8 identifier code, reporting that received information to a receiver host.

1 34. An electronic communication system for generating a random identifier
2 code, the system comprising:

3 a first circuit for communicating information and generating a random
4 identifier code having randomness that is derived from tolerances
5 associated with components included in the first circuit; and

6 a second circuit communicatively coupled to the first circuit, the second
7 circuit for receiving the information communicated by first circuit,
8 wherein the information includes the random identifier code.

1 35. The system of claim 34 wherein the first circuit and the second circuit
2 each have a storage area for storing random identifier code.

1 36. A method for associating a transmitter with a receiver, wherein the
2 transmitter and the receiver are part of a wireless communications system, the method
3 comprising:

4 generating a random identifier code having randomness that is derived from
5 tolerances associated with components included in the wireless
6 communications system; and

7 assigning the random identifier code to the transmitter and the receiver
8 thereby creating a transmitter-receiver pair.

1 37. The method of claim 36 further comprising:

2 storing the random identifier code in a storage area in the transmitter; and

3 storing the random identifier code in a storage area in the receiver.

1 38. A wireless communications transmitter system comprising:

2 a transmitter circuit means for transmitting information and generating a
3 random identifier code having randomness that is derived from
4 tolerances associated with components included in the transmitter
5 circuit means, wherein the random identifier code is included in the
6 transmitted information.

1 39. A wireless communications system comprising:

2 a transceiver circuit means for transmitting and receiving information, and for
3 generating a random identifier code having randomness that is derived
4 from tolerances associated with components included in the
5 transceiver circuit means, wherein the random identifier code is
6 included in the transmitted information.

1 40. A method for distinguishing transmissions of a wireless transmitter means,
2 the method comprising:

3 generating a random identifier code having randomness that is derived from
4 tolerances associated with components included in the wireless
5 transmitter means; and

6 embedding the random identifier code in the transmissions of the wireless
7 transmitter means.

1 41. A method for distinguishing transmissions of a transceiver means included
2 in a wireless communications system, the method comprising:

3 generating a random identifier code having randomness that is derived from
4 tolerances associated with components included in the transceiver
5 means; and

6 embedding the random identifier code in the transmissions of the transceiver
7 means.

Added